1. A town has an initial population of 20000. The town's population for the next 9 years is provided below. Which type of function would be most appropriate to model the town's population?

Year	1	2	3	4	5	6	7	8	9
Pop	20000	20034	20054	20069	20080	20089	20097	20103	20109

   A. Linear

   B. Non-Linear Power

   C. Exponential

   D. Logarithmic

   E. None of the above

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2. Using the situation below, construct a linear model that describes the cost of the coffee beans $C(h)$ in terms of the weight of the high-quality coffee beans h.

   Veronica needs to prepare 100 of blended coffee beans selling for \$5.53 per pound. She has a high-quality bean that sells for \$6.88 a pound and a low-quality bean that sells for \$4.84 a pound.

   A. $C(h) = 6.88h$

   B. $C(h) = 2.04h + 484.00$

   C. $C(h) = 5.86h$

   D. $C(h) = -2.04h + 688.00$

   E. None of the above.

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3. What is the **best** way to describe the domain of the scenario below?

   The rate at which a cricket chirps is a linear function of temperature. At 59 degrees F they make 76 chirps per minute and at 65 degrees F they make 100 chirps per minute.

   A. Subset of the Rational numbers

   B. Subset of the Natural numbers

C. Proper subset of the Real numbers

D. Subset of the Integers

E. There is no restricted domain in this scenario

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4. For the information provided below, construct a linear model that describes the total distance of the path, D, in terms of the time spent on a particular path *if we know that all parts of the path are equal length.*

A bicyclist is training for a race on a hilly path. Their bike keeps track of their speed at any time, but not the distance traveled. Their speed traveling up a hill is 5 mph, 11 mph when traveling down a hill, and 7 mph when traveling along a flat portion.

A. $23t$

B. $0.434t$

C. $385t$

D. The model can be found with the information provided, but isn't options 1-3

E. The model cannot be found with the information provided.

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5. Using the situation below, construct a linear model that describes the cost of the coffee beans $C(h)$ in terms of the weight of the low-quality coffee beans h.

Veronica needs to prepare 150 of blended coffee beans selling for \$2.92 per pound. She has a high-quality bean that sells for \$3.67 a pound and a low-quality bean that sells for \$2.41 a pound.

A. $C(h) = 3.04h$

B. $C(h) = 2.41h$

C. $C(h) = 1.26h + 361.50$

D. $C(h) = -1.26h + 550.50$

E. None of the above.

6. A town has an initial population of 30000. The town's population for the next 9 years is provided below. Which type of function would be most appropriate to model the town's population?

Year	1	2	3	4	5	6	7	8	9
Pop	30000	30020	30032	30041	30048	30053	30058	30062	30065

A. Linear

B. Exponential

C. Logarithmic

D. Non-Linear Power

E. None of the above

7. For the information provided below, construct a linear model that describes the total distance of the path, D, in terms of the time spent on a particular path *if we know that the time spent on each path was equal.*

A bicyclist is training for a race on a hilly path. Their bike keeps track of their speed at any time, but not the distance traveled. Their speed traveling up a hill is 4 mph, 8 mph when traveling down a hill, and 6 mph when traveling along a flat portion.

A. $192t$

B. $18t$

C. $0.542t$

D. The model can be found with the information provided, but isn't options 1-3

E. The model cannot be found with the information provided.

8. For the information provided below, construct a linear model that describes her total costs, C, as a function of the number of months, x she is at UF.

Aubrey is a college student going into her first year at UF. She will receive Bright Futures, which covers her tuition plus a $800 educational expense each year. Before college, Aubrey saved up $9000. She knows she will need to pay $800 in rent a month, $80 for food a week, and $32 in other weekly expenses.

A. $C(x) = 9800$

B. $C(x) = 9800x$

C. $C(x) = 912x$

D. $C(x) = 912$

E. None of the above.

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9. What is the **best** way to describe the domain of the scenario below?

The rate at which a cricket chirps is a linear function of temperature. At 59 degrees F they make 76 chirps per minute and at 65 degrees F they make 100 chirps per minute.

A. Subset of the Natural numbers

B. Subset of the Rational numbers

C. Subset of the Integers

D. There is no restricted domain in this scenario

E. Proper subset of the Real numbers

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10. For the information provided below, construct a linear model that describes her total budget, B, as a function of the number of months, x she is at UF.

Aubrey is a college student going into her first year at UF. She will receive Bright Futures, which covers her tuition plus a $800 educational expense each year. Before college, Aubrey saved up $5000. She knows she will need to pay $800 in rent a month, $80 for food a week, and $32 in other weekly expenses.

A. $B(x) = 4888x$

B. $B(x) = 5800 - 912x$

C. $B(x) = 4552x$

D. $B(x) = 5800 - 1248x$

E. None of the above.
